



# Penn Medicine

## Lancaster General Health

### **Blood Specimen Preparation and Handling**

Laboratory test results provide vital information necessary in patient health care plans. Correct diagnostic and therapeutic decisions rely on the accuracy of test results. The accuracy of test results is dependent on the integrity of the specimen: patient preparation, specimen collection, specimen handling, and specimen transport are essential prerequisites for accurate testing. LGH Laboratory Services staff takes many precautions with the specimens you collect in your facility, to maintain the specimen integrity during transport to our laboratories.

### **Preparation**

Prior to each collection, review the specimen test requirements listed with each test in the directory. Note the correct specimen and minimum amount to be collected, the procedure and collection materials needed, and the handling and storage requirements to be followed before transport to the laboratory. There is a much greater chance of critical error to occur in these steps, rather than in the actual testing or examination of the specimen. Errors in specimen handling and storage compromise the integrity of the specimen, thus affecting the test results.

**\*\*It is the client's responsibility to follow the proper guidelines for specimen collection, handling, and storage, until the courier picks up the specimen.\*\***

### **Clinical Laboratory Requisition**

Use the Clinical Laboratory Requisition when ordering any Laboratory work for your patients. This form should be used when Laboratory testing is required, either in your office or if you send the patient to a LGH facility. These forms meet compliance standards to which we must adhere. It also includes an Advanced Beneficiary Notice for your convenience. Complete patient information (date of birth, last 4 digits of Social Security number, and address), insurance/guarantor information, and ICD-10 diagnosis codes must be provided. The form also provides test and panel component descriptions. Do not use physician prescriptions or other preprinted request forms.



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### SOFT Tube Designation Key

- PLDKBL** = Plain Dark Blue
- EDKBL** = Dark Blue w/ EDTA
- GRN LIT** = Green, Lithium Heparin
- SST** = Gold
- GRAY** = Gray
- Lt Blue** = Light Blue
- LAV** = Lavender
- Pink** = Pink tube; 6mL EDTA
- GrnNa** = Green, Sodium Heparin
- Red** = Red, plain; 5, 10 & 15mL
- Y-SPS** = SPS Tubes for Microbiology
- Yel AB** = ACD Solution

Order of Draw for Multiple Tube Collections			
1 <sup>st</sup>	Blood Culture, Sterile Tubes		
2 <sup>nd</sup>		First	Yellow ACD
		Lt Blue	
		Red	
		PLDKBL	
		SST	
		GRN LIT	
		GrnNa	
		LAV	
		EDKBL	
		Last	GRAY

### SOFT Collection Containers

- 24UCC** = 24 Hour Collection Container
- CC** = Clean Container
- CSFT** = CSF, clear numbered tubes
- CULT** = Culturette or Swab
- SC** = Sterile Container – blue screw-capped container
- TT** = Urine Culture Transport Tube (Gray BD)
- UT** = Urinalysis Transport Tube (Conical tube)
- UT/TT** = Urinalysis and Culture Transport Tubes
- ES1** = ESwab Regular Collection Kit (White Cap)
- ES2** = ESwab Mini Tip Collection Kit (Blue Cap)



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### Specimen Labeling Requirements/Documentation

The accuracy of test results can only be accomplished on  
appropriately labeled specimens.

All samples require at least two patient identifiers.

All patient samples must be labeled at the collection site before excusing the patient or leaving the patient side.

**\*\*NEVER PRELABEL SPECIMEN CONTAINERS\*\***

The following information must be printed **legibly** on each specimen container:

- 1) Patient name: last name first, full first name,
- 2) Date of Birth, Social Security number, and MRN (if available),
- 3) Patient location,
- 4) Date and time of collection,
- 5) Initials of person collecting the specimen.

**Special Note: Blood Bank specimens must include pink armband R# on all tubes for the following orders: Hold BB, Type & Crossmatch and Type & Screen.**

Documentation of each collection is performed as follows:

- 1) When specimen is collected, write the date, time and initials of the collecting person in the collection information spaces on the appropriate Laboratory Requisition.
- 2) Add other pertinent information as to the nature or quality of the specimen, or circumstances of the collection. For example: fasting, time of last dose for drug levels, etc.

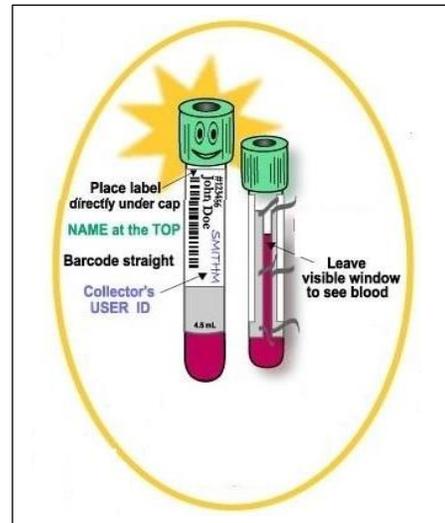


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Ensure correct application of the LIS bar coded label (when available) on blood sample tubes.

- 1) Short tube and Tall tube - Line up the label so the bar code is straight and apply directly under the cap with the name at the top.
- 2) Leave a visible "window" to see the blood and avoid wrinkles.



Non-patients (physician office-collected specimens submitted to the Lab) who have services provided without armband identification must have the following minimal information applied on the tube or container label:

- 1) Patient Name (including full first and last name)
- 2) Date of Birth

Information that should be supplied along with the specimen on the Lab Requisition or Order Form include:

- a) Patient Location
- b) Patient Address
- c) Identification of the person collecting the specimen.
- d) Date/Time of Collection

### Minimum Tube - Collection Requirements

The "minimum" is not the quantity desired for routine work. The "minimum" is the smallest quantity from which results can usually be obtained...**it is not a guarantee of a result.** If the patient has an elevated hematocrit or if a dilution or repeat determination is necessary because of an elevated result value, the minimum specimen is frequently not enough. **Be sure to fill the blood collection tubes.**



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### **Specimen Handling**

Following specimen collection, the specimen should be processed in such a way as to assure that the specimen identity and integrity is not compromised. Specimen storage requirements listed with each test in the directory should be followed. Generally, specimen storage falls into three categories: room temperature, refrigeration, or frozen. The majority of blood specimens should be refrigerated and should be handled using the following guidelines:

**Tube Closure** – After the specimen is collected and labeled, the tubes should remain stoppered. Certain test results could be inaccurate if the stopper is removed too soon. Keeping the tube stoppered also prevents contamination and evaporation of the specimen.

**Tube Orientation** – Tubes should be kept in a vertical, stopper up position, rather than a horizontal position. The vertical position reduces agitation of the specimen. Also, the stopper is less likely to accidentally come off the tube.

**Specimen Agitation** - To minimize hemolysis (breakdown of red blood cells), vigorous handling of the specimen should be avoided. Hemolyzed specimens are unacceptable for use in many tests, including: Hemoglobin, Hematocrit, CBC, Potassium (K<sup>+</sup>), Magnesium (Mg<sup>++</sup>), Lactic Dehydrogenase (LD), Albumin, and Aminotransferases (ALT, AST).

**Exposure to Light** – Exposing the specimen to light can cause the breakdown of certain analytes, bilirubin in particular, and should be avoided. Aluminum foil or amber colored containers will protect the specimen from light.

**Temperature - Refrigerated:** These specimens should be kept at 2-8°C (35-45°F) prior to and after centrifugation.

**Transport on Ice** – Place the sample(s) in a biohazard bag, place this bag into a biohazard bag filled with ice, close the bag and place paperwork in the outer pouch if needed.

\*\* If using the PEVCO tube system, fill a biohazard bag with ice, close the bag, place the sample(s) in the outer pouch, and place this bag inside another bag for transport.\*\*

**Room Temperature:** These specimens should be kept at 22-26°C (70-78°F) after collection and until receipt in the laboratory for analysis.



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**Frozen:** Tests that require *serum* specimens should be kept refrigerated for 30-60 minutes, centrifuged, the serum separated into freezer safe containers, and then immediately frozen and kept at  $<0^{\circ}\text{C}$  until receipt in the laboratory for analysis. Tests that require *plasma* specimens should be centrifuged immediately, the plasma separated into freezer safe containers, and then immediately frozen and kept at  $<0^{\circ}\text{C}$  until receipt in the laboratory for analysis.

**\*\*It is the client's responsibility  
to preserve the collected specimen  
at the proper recommended temperature until specimen is picked up by the courier\*\***

### **Special Handling**

Individual tests or Panels with special handling and/or immediate processing instructions must be followed to assure valid results. Some of these tests might require pre-chilled tubes, use of a refrigerated centrifuge, freezing at  $-70^{\circ}\text{C}$ , etc. These tests will be indicated with the statement: **\*\*\*Collect at LGH Labs\*\*\***. Other tests may be restricted by the requirement that specimens should **not** be held overnight.

Some tests are listed for informational purposes only and to indicate that the collection **must** be performed at the testing site or that an appointment is required. The information is provided to facilitate making proper arrangements and to assure that the patient is properly prepared.

The client may elect to collect the specimen in the office, but the office must arrange immediate transport to the Laboratory by office staff or family member. These specimens will be accepted for normal processing and billing through the third floor Specimen Receiving Office, if accompanied by a complete Clinical Laboratory Requisition form.